

CLAIMS

We claim:

1. A labeled polymerase extended PNA-DNA chimera comprising the structure:

5 $P_x - L - N_y \xrightarrow{3'} \text{Extension}$

wherein:

P is independently a PNA monomer;

X is an integer from 5 to 15;

L represents a covalent linkage between P and N;

10 each N is independently a nucleotide;

y is an integer from 1-15; and

15 $3' \rightarrow \text{Extension}$ is the polymerase extension product comprising at least one non-radioisotopically labeled nucleotide wherein the label is selected from the group consisting of a fluorescent dye, a fluorescence quencher, a hybridization stabilizer, an energy-transfer dye pair, an electrophoretic mobility modifier, a chemiluminescent dye, an amino acid, a protein, a peptide, an enzyme and an affinity ligand.

2. The PNA-DNA chimera of claim 1, wherein the PNA-DNA chimera is hybridized to the template nucleic acid.

3. The PNA-DNA chimera of claim 2, wherein the template comprises an affinity capture ligand.

- 25 4. The PNA-DNA chimera of claim 1, wherein the label is a fluorescent dye.

5. The PNA-DNA chimera of claim 4, wherein the moiety represented by $P_x - L - N_y$ is unlabeled.

- 30 6. The PNA-DNA chimera of claim 1, wherein the moiety represented by $P_x - L - N_y$ is unlabeled.